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THE PLANT DISEASE BULLETIN

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The Plant Disease Survey

VOLUME III. NUMBER 1

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BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

Hon. David F. Houston,
Secretary of Agriculture,
Washington, D. C.

THE PLANT DISEASE BULLETIN

Issued by

THE PLANT DISEASE SURVEY

Vol. III Number 1

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CABBAGE

Rot caused by Sclerotinia libertiana Fckl.

In Texas Sclerotinia seems to be general on cabbage according to reports of L. R. Hesler. At San Benito and Mercedes it was the most prevalent and destructive cabbage disease on March 14. In this locality it was found in every field in about the same amounts. In many cases heading was prevented, while in other cases the mold was followed by slimy soft rot resulting in the destruction of the head. From 2-10% (average 3%) of the plants were affected. As the acreage is large for this section the total loss was considerable.

In Alabama, Mississippi and Louisiana this fungus was not very prevalent on cabbage, although it was observed in slight amount in some instances.

Inspection of 3 cars of cabbage from Alabama in northern markets revealed the presence of watery soft rot in slight amounts, the decay in 1 car being somewhat heavier and affecting one half of head in a few cases. Two cars originating in California showed contents affected, one car with 3% of cabbage slightly decayed, the other car with half of cabbage decayed in outer leaves and a coating of white mold on many heads. One car of Florida cabbage was badly decayed, 40% of heads affected, 1/3 of this decay affecting nearly half of head, 2/3 affecting outer 4 to 10 leaves.

Yellows caused by Fusarium conglutinans Woll.

Alabama: (Hesler, April 12.) Not so conspicuous as last year about Mobile and Theodore. Judging from appearances however it may be expected to become more abundant as season progresses. Fields observed showed from a trace to 17% affected plants. Early Summer variety mostly grown.

Mississippi: (Hesler) This is the most prevalent and destructive cabbage disease at present in the state. At Crystal Springs it seems almost certain that with continued warm weather the disease will reduce the crop considerably. Growers agree that in 1917 the disease was serious, but in 1918 even on the same land the fungus did practically no damage. This year it was observed in every field of cabbage. In one case 4% total loss was seen but this is regarded as only a mild affection.

(Fields, April 26.) Reported from the region around Canton.

Louisiana, St. Bernard and Dalcour Sections: (Hesler, March 24.) General throughout these areas where heavy acreages are grown. In one plantation 5% of the plants were dead or dying and 10% in addition showed poorly developed heads. The disease is rather severe in this section where the crop is grown year after year.

Black leg caused by Phoma lingam (Tode.) Desm.

Alabama, Mobile and vicinity: (Hesler, April 12.) Cases found in practically all fields. Most severe case observed near West Mobile on field which had produced cabbage for fourteen years.

Mississippi: Slight to moderate damage was noted at Crystal Springs and a trace at Canton. The most severe case noted at Crystal Springs was a field with 7% of the plants affected to such an extent that heading was a failure.

Black mold caused by Alternaria brassicae (Berk.) Sacc.

Alabama, Mobile: (Hesler, April 12.) Traces found in every field. Nowhere serious enough to cause damage however.

Florida, Vicinity of Moore Haven and Ft. Myers: (G. K. K. Link.) Very bad in one field of 100 acres which also had 50% black rot.

Two cars of Florida cabbage inspected at northern markets showed considerable spotting of leaves and an occasional head badly decayed.

Texas: Common in cabbage areas, especially on older plants.

Black rot caused by Bacterium campestre (Pam.) E. F. Sm.

Alabama: In one car of Alabama cabbage an occasional head was found to be badly decayed by black rot.

Florida, Vicinity of Moore Haven and Ft. Myers: (G. K. K. Link, March 22.) "Cabbage showed a lot of black rot. One field of 100 acres was found which showed only 50% of a crop due to ravages of black rot."

Sclerotium blight caused by Sclerotium rolfsii Sacc.

Traces were observed by L. R. Hesler at San Benito, Texas, March 14 and at Mobile, Alabama, April 12.

Downy mildew caused by Peronospora parasitica (Pers.) DeBy.

This disease was observed by L. R. Hesler in Texas March 14, Mississippi April 18, and Alabama April 12. In no case was it doing serious damage.

Ring spot caused by Mycosphaerella brassicicola.

California: (Milbrath, April 19.) Severe cases found at Colma, both in fields and in crates packed for shipment. In the field the disease was evidently on all parts of exposed leaves. Growers state that the disease has been present as long as they can remember.

Soft rot caused by various organisms.

Table 1. Losses from slimy soft rot probably caused by Bacillus carotovorus as shown by inspection of cars in northern cities by the Bureau of Markets.

Origin of shipment	No. of cars with decay	Percent affected heads	Remarks as to seriousness of decay
Alabama	17	8 cars 7%	Usually in outer leaves and slight.
		10 " 32%	Very heavy decay in top of each car, slighter at bottom of car.
California	27	12 " 18%	Decay variable, heaviest at top.
		15 " 4%	Mostly slight decay of outer leaves.
Florida	11	3 " 100%	Decay in outer 3 to 5 leaves, occasional head worthless in all crates.
		4 " 35%	Part slight decay, some bad decay.
		4 " 8%	Decay slight, mostly in spots.
Louisiana	8	1 " 85%	Some total decay, mostly slight.
		7 " 12%	Decay in outer 1 to 5 leaves.
North Carolina	1	1 " 25%	Decay in 3 to 8 leaves, some total decay.
South Carolina	1	1 " 2%	Slight decay in 2 to 5 leaves.
Texas	21	5 " 67%	Much bad decay in all cars, some stock worthless. Heaviest at top of load.
		5 " 30%	Decay largely in outer leaves, a few worthless heads noted.
		11 " 5%	Decay slight, affecting outer leaves.
Mexico	1	---	Occasional head showed decay.

Table 2 Losses from decay or soft rot, the causes for which are not given, as reported by inspectors of the Bureau of Markets.

Origin of shipment	No. of cars with decay	Percent affected.	Remarks as to seriousness of decay
Alabama	5	1 car 50%	Decay bad in all but lower layer.
		1 " 16%	Outer 2 to 4 leaves affected.
		3 " 5-10%	Slight decay of 2 to 4 leaves.
California	4	2 " ---	Decay slight in outer 1 to 6 leaves.
		1 " 30%	Large spots of decay in 4 to 8 outer leaves.
		1 "45-50%	Affecting outer 1 to 3 leaves.
Florida	2	1 " 100%	From a few leaves to entire head.
		1 " ---	Slight decay in top layer of cabbage.
Louisiana	2	2 " 2-3%	Decay in spots in outer leaves only.
Maryland	1	1 " 100%	Top layer 50% total decay, 50% slight, balance of load requiring trimming of 3 to 5 leaves, some heads total loss.
Mississippi	4	1 " 25%	Decay of outer 1 to 3 leaves.
		1 " 15%	" " " " " " "
		2 " 5%	Slight decay of 1 to 3 leaves.
South Carolina	1	---	Occasional head showing decay.
Texas	9	4 " 50%	Mostly in outer leaves (2 to 3).
		2 "15-16%	Decay in outer leaves only.
		3 " 3%	Slight decay in 1 to 3 leaves.
Virginia	2	---	Slight in some crates, heavy in others.

Leaf speck (cause indefinite).

California cabbage inspected at Chicago was rather heavily spotted with "leaf speck", 3 cars with 25%, 40% and 100% of contents affected, another car with 2% of heads so spotted. This trouble was in the form of small, irregular, dull black spots in outer leaves.

Considerable leaf speck was found in a field of 100 acres at Moore Haven, Florida, March 22-29 by G. K. K. Link.

A leaf speck, suspected as being caused by Bacterium maculicolum, was reported from Louisiana, Alabama, Mississippi, and Texas by L. R. Hesler in March and April. In no case was it doing more than moderate damage to the leaves.

Lightning injury.

Mississippi: (Hesler, April 18.) A case was observed where all the plants were dead in a small area probably 30 feet in diameter. The grower claimed that lightning struck the spot during a rain storm about April 15.

Gray mold rot caused by Botrytis sp.

In 2 cars of California cabbage 15 and 25% gray mold rot was noted, affecting outer 2 to 10 leaves. Texas cabbage showed only an occasional badly decayed head.

LETTUCE

Drop caused by Sclerotinia libertiana Fckl.

Alabama: One to 2% of the plants badly affected in places near Mobile, April 12.

Florida: Drop was serious in the Sanford district this season according to reports of members of the Office of Cotton, Truck and Forage Disease Investigations. Apothecia resulting from last year's sclerotia were to be found abundantly on February 21.

Louisiana: (Edgerton, June 1.) Quite severe in some fields; 25% affected plants occurred in some cases but the average is of course much lower.

Mississippi: At Canton, where there are large plantings of lettuce and where lettuce is a comparatively new crop, the plants were unusually healthy. Only a slight amount of drop was found on one farm.

New Jersey: (Massey, C. & T. News Notes, March 22 and May 3.) Practically all growers throughout the trucking section of the northern part of the state experienced serious losses from lettuce drop in their cold frames, and cases of complete failure were common.

North Carolina: (Jehle, April 26.) Only a few plants were found affected with drop in Hanover County, where a good many fields were visited.

Texas: (Hesler, March 19.) General and doing considerable damage about Dickinson and Houston. Often affected heads were completely destroyed.

Table 3. Losses from watery soft rot of lettuce as shown by inspection of cars by the Bureau of Markets, 1919.

Origin of shipment	No. of cars with decay	Percent of decay	Remarks as to seriousness of decay
California	4	3 cars 5%	Decay usually slight, although rather
		1 " 12%	heavy at top of load.
Florida	7	3 " 75%	All heads showing decay in 1 car, some crates with lettuce badly decayed.
		2 " 20%	Decay present only in half of load.
		2 " 5%	Decay slight.
South Carolina	1	1 " 66%	Decay in 3 to 10 leaves, following tip burn.
Texas	4	2 " 100%	Decay in 3 to 12 outer leaves, occasional head completely decayed.
		2 " 50%	Decay in outer leaves.
Origin unknown	1	1 " 100%	Heads at door with 8 to 20 leaves decayed, rest of car 3 to 12 leaves.

Tip burn (Non-parasitic).

Tip burn was reported in the field from Florida, Louisiana, and Texas. In Louisiana this was the most prevalent lettuce trouble in the whole region south of New Orleans, both outer and central leaves being affected.

Table 4. Percentage of tip burn as shown by inspection of cars by the Bureau of Markets, 1919.

Origin of shipment	No. of cars with decay	Percent of decay	Remarks as to seriousness of decay
California	8	3 cars 100%	In all cases slight.
		2 " 66%	All leaves of affected heads bad.
		3 " 2-6%	Tip burn slight.
North Carolina	1	---	Outer leaves of many heads affected.
South Carolina	1	100%	Tip burn on 3 to 12 leaves of all heads.
	2	1 car 75%	Slight.
		1 " 20%	Tips of outer leaves affected.

Downy mildew caused by Bremia lactucae Reg.

This disease has been reported from Texas and New Jersey (In a greenhouse). In Texas, L. R. Hesler found considerable of the disease in fields about San Benito, Harlingen and Mercedes. In one field of 13 acres, almost ready for shipment, 75% of the heads showed from 1-4 leaves moderately affected. At Mercedes another field showed 90% of the plants with from one to all of the leaves affected with mildew. At a distance the whole field appeared brownish. Foggy weather and wet soil favored the disease.

Head rot caused by Botrytis sp.

Louisiana: A very little; loss very small.

North Carolina: (Jehle, C. & T. News Notes, May 17.) Head rot was found in every field visited in Hanover County. Losses varied from one third to one half of the crop. The County Agent estimated that the loss in the county will average about 33%. The trouble seems to be caused by Botrytis cinerea, which is found fruiting in many beds. The disease begins at the tips of the leaves causing them to turn yellow, then brown, and finally a slimy rot follows. Heads may look healthy externally but when opened the tips of interior leaves may be affected. Found on all varieties, and all types of soil.

Texas: (Taubenhaus) Serious this year on account of wet weather; 1/2% loss estimated.

Internal browning (cause undetermined).

California: (Milbrath, C. & T. News Notes, March 1.) "In the Imperial Valley I found cases of a severe disease of lettuce. The outer leaves and head are apparently sound with the exception of marginal browning. The second cycle of leaves is usually normal. Under this cycle the browning increases into the heart." Whether or not this is the same as black heart is uncertain.

Slimy soft rot probably caused by Bacillus carotovorus Jones.

Table 5. Losses from slimy soft rot as shown by market inspection, spring of 1919.

Origin of Shipment	No. of cars with decay	Percent of decay	Remarks as to seriousness of decay
Arizona	1	5%	Some complete decay, mostly confined to 5 outer leaves.
California	27	9 cars 25%+	In each car all of heads in top layer badly decayed, decay decreasing towards bottom of car.
		18 " 9-18%	Some heads badly decayed, others decayed to depth of 1 to 8 outer leaves.
Florida	3	3 " 75-100%	Much worthless stock in each car, 35-40% balance of stock 3 to 5 leaves affected.
Maryland	1	1%	Slight decay.
Texas	2	1 car 35%	Decay in 1 or more leaves, occasional head slimy.
		1 " 25%	Half of decay bad, half slight.
Origain unknown	3	1 " 23%	One-third complete decay, balance affecting 3 to 5 outer leaves.
		1 " 100%	20% worthless, 80% affecting 1 to 8 outer leaves.
		1 " 10-12%	Decay only in top layer.

Other diseases.

Leaf spot caused by Cercospora sp. was found in traces in Louisiana but doing no particular damage.

Soft rot caused by Bacillus sp. is reported as quite abundant in Louisiana where it frequently follows tip burn.

Leaf spot of a bacterial nature is reported by Jagger from Sanford, Florida.

Stem rot caused by Rhizoctonia was reported from Louisiana, New Jersey and Texas in slight amounts.

A rusty leaf spot on outer leaves was noted in a car of Florida lettuce. This trouble affected several heads in each hamper.

Various decays and soft rots were found in lettuce from California, Florida, North Carolina, and Texas. The lettuce in some cars was very heavily decayed, usually the heaviest decay occurring at top of load, and somewhat slighter amounts in lower part of load, affecting usually 1 to 5 leaves.

PEAS

Blight caused by Ascochyta pisi Lib.

Blight has been reported from Louisiana, Mississippi, New Jersey and Texas. In Louisiana it was said to be very common, causing some loss. In Texas it was prevalent, but not especially serious; while at Crystal Springs, Mississippi, it was common on both pods and leaves, but causing only a slight to moderate loss in fields.

Root rots caused by various organisms.

Delaware: (Lecato, May 17.) Root rots are causing a great deal of damage in some places in the state.

Louisiana: (Edgerton, June 1.) Very common and quite serious. Considerable complaint from this trouble. Disease killed the plants before they commenced bearing.

New Jersey: (Cook) Very severe, being most abundant in Burlington County where a number of thousand acres are grown.

Other diseases.

A disease thought to be caused by the same organism as that causing streak of sweet peas and other legumes was reported as severe in Delaware and parts of Maryland. The following report is made by L. L. Harter in C. & T. News Notes April 14, "The crop is reduced about 16% by this disease. Whole fields have been completely destroyed and some are being plowed under without harvesting. The peas in this section are grown largely for canning. The first year's crop is generally good but when grown for a second or third year in succession on the same ground the disease becomes much more severe, or so severe that there is an almost total failure. There are numerous lesions and streaks on vines, leaves and pods. These lesions frequently occur near the soil line and in most cases the roots, with the exception of the tap root, are rotted away.

Outside the cambium layer of the tap root the tissue is likewise dead. The leaves first turn yellow, then dry and brown, and finally drop off, followed by the death of the plant."

J. M. LeCato reports the case of a farmer who estimated his loss of seed peas to be about $9000. He estimated his crop to be cut to 10% because of the trouble described above.

A bacterial blight is reported from Louisiana by C. W. Edgerton as very common and doing some damage, both on leaves and pods.

A disease of a bacterial nature was reported by Hesler from Crystal Springs, Mississippi, as causing some trouble.

A serious disease of garden peas, apparently bacterial in nature, is occurring in parts of the District of Columbia, causing considerable damage. In one garden it is estimated that the yield has been reduced about 90% because of this disease which causes lesions on pods, leaves and more particularly the stems.

POTATO

Late blight caused by Phytophthora infestans (Mont.) DeBary.

Florida: Separate reports of the occurrence of late blight in Florida have been received from Messrs. Jagger, Ankeney, Link and Hesler. It seems that the disease made its appearance somewhat earlier than usual. On March 6 Dr. Jagger found two plants in a three acre field showing primary infection, with secondary infections on a few surrounding plants. The county agent at Hastings reported first seing the disease on March 4. On March 31, Dr. Hesler reported late blight as present in practically every field and doing rather heavy damage at Hastings and especially at Federal Point. In one field 50% of the plants were seriously affected to the extent of about half of the vines being killed. Another field showed about 40% of the plants moderately blighted and another field of ten acres showed one third of the plants dead. About April 1, Mr. Ankeney reported late blight as general throughout the Hastings potato section. He reported that very few farmers sprayed, and in some cases they had started digging the earliest potatoes because of blight.

Late blight tuber rot was noted in 2 cars of Florida potatoes, in 1 car only any occasional potato affected, in the other car an average of 50% of the potatoes showed effects of late blight. In 2 cars of Louisiana potatoes the average decay from what the inspector called late blight was 8%, part of the affected tubers being completely decayed. Numerous shipments of Florida potatoes have shown considerable soft rot which probably was primarily caused by late blight infection in the field.

Wet weather injury.

Florida: Unusually heavy rainfall during March was responsible for a great deal of damage to the potato crop. Link reported 25% damage to potatoes in Hastings and Palatka. Hesler reported that growers at Federal Point and Hastings estimated weather conditions and late blight to have cut the yield 50%.

Mosaic (cause undetermined).

Mosaic has been reported this season on potatoes, especially Bliss Triumph, in Alabama, Louisiana, Mississippi, Kansas, Oklahoma and Texas. In Louisiana Edgerton reports that Bliss Triumph showed 90% mosaic and that not so much of the dwarf stage is evident this year as last season, consequently the loss is probably not so great. In the Mobile section, Alabama, the acreage of potatoes this year is greatly reduced on account of poor yields and low prices in 1918. What potatoes are grown there showed marked mosaic (25 to 95%) on April 12.

Early blight caused by Macrosporium solani E. & M.

Reported from Florida, Louisiana, Mississippi and Texas. In Florida it was very abundant as usual and at Federal Point and Hastings it was general, particularly on the older vines. In Texas it was reported as prevalent due to wet weather and causing about 1% loss.

Scab caused by Actinomyces scabies (Thaxter) Gussow.

Table 6. Percentages of scab in shipments of southern potatoes, spring of 1919.

Origin of shipment	No. of cars with scab	Percent of scab	Remarks as to seriousness of scab
California	1	10+	10% bad scab, some additional slight scab.
Florida	11	10 cars 4%:	In all cases scab was deep.
		1 " 10%:	Very heavy.
Georgia	3	---	An occasional scabby tuber in all cars.
Louisiana	6	4 " 4%:	Scab deep in all cases.
		2 " 20%:	Serious scab.
Mississippi	1	100%	3% bad scab, slight scab on all other tubers.
Texas	17	1 car 60%	Very heavy infection.
		4 " 32%	Serious, some slight.
		7 " 12%	Mostly deep scab.
		5 " 5%	Partly deep scab, partly slight.

Other diseases.

Bacterial wilt caused by Bacillus solanacearum is reported as very prevalent this year in Beaufort County, North Carolina. The average loss on June 9 being about 5% of the plants. In some fields the loss is 15 to 20%.

Sclerotium wilt caused by Sclerotium rolfsii was reported as common in Louisiana, but causing only small losses.

Fusarium wilt caused by Fusarium sp. is reported from Florida as rather general at Federal Point and Hastings, causing a rather high percentage of loss in some cases.

Bacterial decay, much of which was of a slimy, soft type was found in varying amounts in many shipments of southern grown potatoes. Potatoes from the following states were found to be decayed:- Alabama, Georgia, Florida, Louisiana, Mississippi, North Carolina, South Carolina, Texas, and Virginia. The heaviest decay was found in several cars of Louisiana potatoes, most of them running as high as 40% decay. The largest number of shipments came from Florida, about 70 cars with potatoes showing decay ranging from 2% to 35%.

RADISH

Black root rot caused by Aphanomyces sp. = Reosporangium sp. was observed at Long Beach, Mississippi, by L. R. Hesler in one field where 75% of the radishes were badly affected.

White rust caused by Cystopus candidus was common in the 800 acres of radishes grown at Long Beach, Mississippi. This disease and also unfavorable weather are estimated by local men as reducing the crop by 40%.

Slimy soft rot caused by Bacillus carotovorus caused very heavy decay in 46 barrels of radishes from Arkansas, the upper part of many barrels being a mass of decay.

SPINACH

Blight (cause undetermined).

California: (Milbrath, Feb. 8.) A trace of blight found in most fields.

Texas: (Hesler, March 10-12.) All stages of blight were to be found in fields about Austin where approximately 3000 acres of spinach are grown. Probably on the average one third of the crop at Austin is affected and in the cases examined from 5 to 10% of the plants were dead or nearly so. The reduction in yield may be roughly put at 15%. In one field the reduction was from 6000 to 2000 baskets. New soil, which had never grown spinach before, was found showing blighted plants. The trouble does not appear to be confined to any special type of soil, although some claims are made that gravelly soils show blight worst.

The disease was also observed at Mercedes, but only in a portion of the fields and not so general as at Austin.

Anthracnose caused by Colletotrichum spinaciae E. & H.

Louisiana: Prevalent at Kenner, but doing only slight damage.

Texas: (Hesler, March 12-14.) General about Austin, and found in every field after the plants are half grown. Growers refer to it as "age". At Mercedes it was especially abundant on plants suffering from blight.

Downy mildew caused by Peronospora effusa Rabenh.

California: (Milbrath, February 5 and April 19.) In the Sacramento regions and the Imperial Valley severe cases are evident.

Texas: (Hesler, March 10-12.) Observed on plants grown in Austin, Mercedes, Mission and Dickinson. At Austin the worst case was observed on the variety Bloomsdale (curly). It was found generally, however, in all fields and in many cases stripping of the leaves was necessary. Spinach is planted on the same land year after year which probably accounts for successive reinfections. Probably 75% of the plants at Austin have from two to ten spots on each leaf, especially the lower ones. At Mercedes the fungus was very abundant, causing severe damage in places. Yellow areas on the upper surfaces of the leaves were produced and abundant conidiophores on the lower surfaces. No spraying nor effort to control.

Other diseases.

Leaf spot caused by Heterosporium variabile is reported as causing some loss in the Sacramento region of California and as general but not at all serious at Austin, Texas.

Black mold caused by Cladosporium macrocarpum was abundant in a few fields near Mercedes on plants weakened from other causes.

Slimy soft rot was reported in shipments of spinach from California, Maryland, and Texas. The heaviest decay occurred in spinach from California, 1 car with contents completely decayed and a total loss, the other 7 cars with from one-fourth to one-half of spinach decayed and slimy. The spinach from Maryland was badly decayed in parts of car, in other parts free from decay. The decay in Texas spinach was slight in 3 cars, but rather heavy in 1 car which contained many baskets sunken to a slimy mass. This trouble was noted in 2 cars of spinach of unknown origin but did not affect contents.

Watery soft rot, caused by Sclerotinia libertiana, affected 15% of the spinach in a car from Texas.

Soft rot of uncertain cause was reported as causing some losses in shipments of spinach from California, Maryland, Texas, and Virginia, the decay being rather heavy in Virginia and California spinach, some barrels with spinach a sunken and leaking mass.

STRAWBERRY

Leaf spot caused by Mycosphaerella fragariae is reported as being present in about the usual amounts from Louisiana, Michigan, Mississippi, and Texas. In Michigan, because of unusually wet weather, it is thought that it may become worse than usual this year.

Gray mold rot caused by Botrytis sp. is reported as occurring in the field in Louisiana.

Rot caused by Rhizopus sp. has also been noted in the field this season in Louisiana, Mississippi, and Texas.

Below is given a table showing some of the losses in transit caused by these diseases.

Table 7. Losses to strawberry from rots caused by Botrytis sp., Rhizopus sp., and other undetermined causes as shown by inspection of cars by the Bureau of Markets.

Origin of shipment	Gray mold rot		Rhizopus rot		Other decay	
	No. of cars	Percentage of decay	No. of cars	Percentage of decay	No. of cars	Percentage of decay
Alabama	1	-1%	2	5 - 50%	---	---
Arkansas	10	3 cars 10% 1 " 25% 1 " 18% 5 " 2-5%	6	3 cars 10% 3 cars 15%	1	2%
Delaware	1	1-2%	1	50 - 55%	---	---
Kentucky	7	1 car 50% 1 " 35% 5 " 20%	3	1 car 15% 1 " 25% 1 " 75%	---	---
Louisiana	3	3 " 20%	3	1 " 15% 1 " 3% 1 " 20%	1	40%
Maryland	---	---	1	25%	---	---
Missouri	4	2 cars 15% 2 " 6%	2	1 car 25% 1 " 15%	1	18%
North Carolina	4	4 " 15%	1	6%	---	---
Ohio	1	- 1%	1	15%	---	---
Tennessee	7	5 cars 10% 1 " 2% 1 " 25%	3	2 cars 40% 1 " 5%	3	1 car 12% 1 " 40% 1 " 3%
Origin unknown	1	45%				

TOMATO

Wet weather injury.

Tomatoes as well as other crops were badly injured by excessive rainfall in parts of Florida during March. Reports of the damage are available from Messrs. Meier, Rosenbaum, Clark and Ankeney. The following report of the general situation is furnished by Dr. Rosenbaum:

"On March 14 there occurred a heavy down-pour of rain which continued for thirty hours. During the twenty-four hour period, ending in the morning of March 15, nine inches of rain fell. Not only was the precipitation great but the water remained flooding the fields for many hours after the rain. The losses occurred by direct drowning of the plants and by favoring the development of rot producing organisms. The losses were heaviest in Brevard County and in the northern half of Dade, where it is estimated that about 8000 acres of tomatoes were planted. The losses in these two counties was approximately 60%."

Early blight caused by Macrosporium solani E. & M.

Florida: Notes on the losses from early blight are available from Messrs Rosenbaum, Meier, Link, Ankeney, and Clark. This disease was widely distributed as usual on leaves and fruit and did great damage to the tomato crop. According to Dr. Rosenbaum it can unhesitatingly be said that this caused more loss than any other tomato disease in Florida this year.

Florida tomatoes examined on the city market in New Orleans showed considerable nailhead spot. Frequently 95% of the tomatoes from Florida showed several nail heads. Cuban shipments showed relatively little as compared with those from Florida.

Louisiana: Seven percent reduction in yield in fields near Arabi according to E. V. Hollis.

Table 8. Percentage of early blight or "nailhead spot" as shown by inspection of cars by the Bureau of Markets.

Origin of shipment	No. of cars with decay	Percentage of affected fruit	Remarks as to seriousness of infection
Arizona	1	5-8%	Usually 1 or 2 spots to the tomato.
Florida	116	24 cars 28%	From 3 to 10 spots, some more.
		52 " 3-5%	Usually 2 spots, occasionally more.
		40 " 10%	Mostly 3 to 8 spots.
Louisiana	1	90%	Very badly spotted.
Mississippi	1	----	Occasional tomato slightly spotted.
Texas	3	2 cars 6%	Very badly spotted.
Mexico	7	3 " 3%	Slight spotting.
		4 " 10%	Tomatoes in 3 cars slightly spotted. in the other car severe.
Unknown origin	1	----	Occasional tomato with 1 or more spots.

Fusarium wilt caused by Fusarium lycopersici Sacc.

Florida: Slight amounts were reported by W. B. Clark March 29 and W. N. Ankeney April 13. Not over 1/2% of the plants were affected.

Louisiana: Traces found in seed beds at New Orleans March 24 by L. R. Hesler.

Mississippi: Trace observed at Crystal Springs April 18. Plants were too young to show the trouble at that date.

North Carolina: (Jehle, April 26 and May 3.) Growers in Lenoir and Sampson Counties report considerable trouble with wilt.

Leaf blight caused by Septoria lycopersici Speg.

Observed in Florida, Mississippi and Louisiana in very slight amounts.

Phoma rot caused by Phoma destructiva Plowr.

Florida: Phoma rot was common on ripe fruit in the fields but not causing serious losses. The greatest damage from this disease occurs to fruit in transit.

Florida tomatoes observed in the city market at New Orleans were affected with Phoma rot. It was also noted as being so abundant on Cuban tomatoes that 25 to 50% of the fruits were discarded.

Table 8. Losses from Phoma rot as shown by inspection of cars by the Bureau of Markets.

Origin of shipment	No. of cars with decay	Percentage of decay	Remarks as to seriousness of rot
Arizona	2	1 car 3%	Slight spotting.
		1 " 17%	Uniform throughout load.
California	1	7%	----------
Florida	156	2 cars 85%	Badly decayed.
		16 " 34%	Mostly bad decay, in large spots.
		46 " 10-15%	Numerous spots of decay.
		92 " 2-7%	Mostly in small spots and associated with other rots.
Louisiana	2	1 " 11%	Slight decay in spots, come complete.
		1 " 40%	Decay in spots, slight.
Mississippi	1	---	Occasional tomato affected.
Missouri	1	1 30-40%	----------
Texas	7	3 cars 10%	Associated with soil rot and Rhizopus.
		4 " ---	"Some Phoma rot". No estimate given.
Cuba	2	1 " 2%	----------
		1 " 9%	Slight, small spots only.
Mexico	21	8 " 15%	Usually associated with other rots.
		13 " 3-8%	" " " " "

Buckeye rot caused by Phytophthora terrestria Sherb.

Florida: (Rosenbau, C. & T. News Notes, March 29.) All fields about Miami showed exceptionally heavy infection of buckeye rot. This was on account of the unusually heavy rains. In one field there were 66% diseased fruits by actual count. One grower who had hired special labor for picking the fruit on the day following the rain and immediately packed more than 500 crates was compelled to repack all of these on account of the development of Phytophthora rot. Less than one third of these crates were saved.

Blossom drop (cause undetermined).

Florida: An unusual amount of drop of blossoms occurred about Moore Haven, Ft. Myer, Larkin, and along the East Coast causing considerable loss in quantity and earliness.

Soil rot caused by Rhizoctonia sp.

Soil rot was more abundant than usual this year in Florida on account of the excessive rains. The following table gives an indication of the damage it incurred in transit.

Table 9. Percentage of soil rot caused by Rhizoctonia sp. as shown by inspection of cars by the Bureau of Markets.

Origin of shipment	No. of cars with soil rot	Percentage of decay	Remarks as to seriousness of decay
Arizona	1	5-25%	Associated with Phoma rot.
Florida	52	15 cars 21%	In a few cars complete decay, in others associated with other rots.
		37 " 3-10%	Usually associated with other rots.
Louisiana	1	---	Occasional tomato affected.
Texas	9	3-12%	Usually bad decay and associated with Phoma and Rhizopus rot.
Cuba	2	4-5%	Mostly complete decay in each car.
Mexico	21	9 cars 13%	In all cases these percentages represent losses from soil rot, Phoma Rhizopus rot, and other rots, no estimate of the exact amount of soil rot being given.
		12 " 2-10%	

Mosaic (cause undetermined).

Florida: (Ankeney, C. & T. News Notes, April 12.) Twenty acres of tomatoes in the Ft. Myer section were affected so badly that it is doubtful if they will make even a poor yield.

(Link, C. & T. News Notes, March 22.) By far the most serious situation about Moore Haven and Ft. Myer is due to mosaic, which is very bad indeed. The growers do not know what it is and claim that it has been ruining their tomato industry.

Other diseases.

Leaf curl (none-parasitic) was reported as moderate and general in all tomato fields about Magda, Louisiana.

Yellowing of the leaves at the tip and between the veins was reported from a field in North Carolina. It is thought that this trouble is due to malnutrition. The grower said it was worse earlier in the season.

Nematode injury was reported from Moore Haven and Ft. Myer. Florida.

Brown ring spot, cause undetermined, which was found last fall in California, was also abundant on both green and ripe fruit in a car of tomatoes from Mexico.

White spot, cause undetermined, was observed by Milbrath in a carload of Mexican tomatoes affecting about 15% of the fruit.

Rot caused by Diplodia sp. was found on two different occasions on tomatoes from the Bahama Islands. The decay progresses rapidly and is very destructive according to F. C. Meier.